$$N_1 = \frac{3I_m}{2C\pi \times 8,8 \times 2\sqrt{2}} = \frac{3 \times 8\sqrt{2}.10^{-2}}{31,25.10^{-6} \times 2\pi \times 8,8 \times 2\sqrt{2}}$$

$$N_1 = 69,44Hz$$

c- $P = UI\cos\Delta\varphi$

$$P = (R+r)I^2$$

$$= 40 \times (8.10^{-2})^2 = 0,256W$$

7

1) a- $U_{bm} = 20V$

$$u_b(t) = U_{bm}\sin(\omega t + \varphi_{ub})$$

$$\omega = \frac{2\pi}{T} = \frac{2\pi}{2.10^{-2}} = \pi.10^{-2} rad.s^{-1} = 100\pi rad.s^{-1}$$

$$\varphi_{ub} = \frac{\pi}{2} rad \text{ car } \varphi_u = 0$$

$$u_b(t) = 20\sin(100\pi t + \frac{\pi}{2})$$

2) a- $*U_{Rm} = 6,4 \times 2,5 \rightarrow \frac{U_{Rm}}{R} = 0,5A = I_m$

$$*rI_m = 4 \times 2,5 \rightarrow r = \frac{4 \times 2,5}{0,5} = 20\Omega$$

$$*L\omega I_m = 7 \times 2,5 \rightarrow L = \frac{7 \times 2,5}{I_m.\omega} = \frac{7 \times 2,5}{0,5 \times 100\pi} = 1,11.10^{-1}H$$

$$\rightarrow L = 0,11H$$

$$\cos(\varphi_{ub} - \varphi_i) = \frac{rI_m}{U_m} = \frac{4}{8} = \frac{1}{2}$$

$$\rightarrow \varphi_{ub} - \varphi_i = \frac{\pi}{3} rad$$

b- $\varphi_{ub} = \frac{\pi}{3} + \varphi_i$ or $\varphi_{ub} - \varphi_i = \frac{\pi}{3} rad$

$$\frac{\pi}{3} + \varphi_i - \varphi_u = \frac{\pi}{3}$$

$$\varphi_i - \varphi_u = \frac{\pi}{2} - \frac{\pi}{3} = \frac{\pi}{6} rad$$

Qarray.tn - Aqra Blech - Qarray.tn